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(54) **Computer-based method of structuring product configuration information and configuring a product**

(57) A computer based method of collecting, structuring, and displaying product configuration information, and using the product configuration information to produce a computer program that validates product option selections and configures a product, is disclosed. The computer based method is used to create a Knowledge Map that contains product information objects. A product information object can be one of: a product option object, representing a customer option; a product module object, representing a collection of product parts, plans, tools, functional tests, inspections, or software; a grouping object, grouping product options or modules; or a relational object representing a relation between product objects. An input device is used to select a plurality of product information objects and position the objects in a display area. Upon selection of the objects, an operator is prompted to input specific information pertaining to the selected object. Constraints limit the selections that an operator can make, the appearance of the objects, and the configurations that can be produced from selected objects. Information pertaining to selected objects and their configuration is stored in a database. Changes can be made directly to the information stored in the database, and these changes are reflected in a corresponding display of the product information. After producing a Knowledge Map, the information is retrieved from a database to produce a set of rules that is input to a rule-based program for validating

a set of product option selections and configuring a final product defined by resulting modules. The information can also be retrieved to produce object-based information to be used in the creation of an object-based program for validating a set of product options and configuring a product.

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